THE YUKON WOLF CONSERVATION AND MANAGEMENT PLAN

Prepared by the Yukon Wolf Management Planning Team

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Yukon
Renewable Resources

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1.0 - WHAT IS THE YUKON WOLF CONSERVATION AND MANAGEMENT PLAN?

In recent years there has been a growing recognition of the need to develop plans for the conservation and management of renewable resources. This is due to the managers realizing that past ways of management have usually been reacting to problems. At the same time, it has also been recognized that management decisions which are directed at one species can often cause serious problems for many other species. This has made biologists and wildlife managers begin to look at nature as a whole through what is known as an "ecosystem approach".

Wolf management is a complex management issue with biological, social and economic impacts. All these aspects must be considered to develop solutions. The Yukon Wolf Conservation and Management Plan tries to address the variety of concerns which exist in the Territory about wolves. It first tries to insure that wolves will continue to exist in the Yukon in healthy numbers. Second, it recognizes non-consumptive values of wolves and the fact that many hunters and trappers are also non-consumptive users. Third, the Plan makes recommendations for consumptive use (hunting and trapping) of wolves which show greater respect for them, similar to other big game animals. Finally, it recognizes and identifies special conditions where wolf numbers can be controlled to help moose, caribou or sheep populations to increase.

2.0 - WOLVES IN THE YUKON

The grey wolf (Canis lupus) once had the largest historical range of any large mammals in the world, with the exception of humans. Wolves are highly adaptable and have learned how to hunt a variety of animals throughout the world. In the Yukon, important prey species are mainly ungulates during the winter - moose, caribou, deer and mountain sheep. Predation by wolves on these species can be a very important factor controlling their population sizes. During the summer, wolves hunt a variety of small mammals, including beaver, muskrat, ground squirrels, snowshoe hares, small rodents and birds.

To successfully hunt large mammals, wolves have evolved complex social behaviour that allows them to live in groups or packs. These packs are usually extended family units composed of a pair of breeding adults, their pups and older offspring. In the Yukon, packs average 7 or 8 in number, but they can commonly reach 16 to 20 animals. In most areas of the Yukon, wolves are territorial, strongly defending their areas from other wolves. This territorial behaviour has evolved to ensure the supply of large mammals is

adequate for a pack of wolves to survive and successfully reproduce. The territory of a typical Yukon wolf pack is 600 to 1000 square kilometers in size, however in the far north of the Territory, wolves are migratory, living in packs that follow the seasonal movements of the Porcupine caribou herd.

There are about 4000 to 4500 wolves in the Yukon, based on estimates derived from snow-tracking wolves from small aircraft. About one-third of the Yukon has been censused for wolves so far and these surveys have shown that the number of wolves in an area (the density) is related to the abundance of prey available in the area. Wolf densities range from lows of 3 to 4 wolves per 1000 square kilometers in the Carmacks-Nisling area and the northern Yukon to 18 wolves per 1000 square kilometers in the Teslin burn area. The average density in other parts of the Yukon is about 10 wolves per 1000 square kilometers.

Wolves have been important animals to Yukon Indians since long before white settlers arrived in the area. Wolves have held a special place in the spiritual world of Indians and their use as a symbol for one of the two clans of Indians continues today. Some Yukon Indians practiced local wolf control when numbers seemed to be too high, primarily by "denning", or removing pups from dens in the spring. After the gold rush, many of the gold-seekers turned to hunting and trapping and the wolf was widely hunted because they were valuable furbearers and seen as competitors for moose and caribou.

During the 1920's, strychnine poisoning of wolves was first allowed in the Yukon and bounties were introduced in the 1930's. During this time, it is estimated that about 500 wolves were killed each year. Government poisoning programs started in the 1950's when up to 154 strychnine poison baits were set out in the southern Yukon each winter. Between 1957 and 1967, a total of about 600 wolves were killed and many other animals were accidentally killed, including more than 150 wolverines. Throughout the 1960's, poisoning continued, with the government distributing strychnine to reduce wolves in order to increase game animals. The use of poison in the Yukon was outlawed in 1972, but it was used as part of a Territorial Government wolf control program around Whitehorse in 1982-83.

Since the 1970's, 100 to 200 wolves have been hunted or trapped annually, which represents about 3% to 6% of the winter wolf population. The government of the Yukon conducted two wolf control programs during the 1980's. Wolves were shot from helicopters in Game Management Zone 7 beginning in 1983 and the program continued until 1985 when it was cancelled. From 1983 to 1989, wolves were removed from the Finlayson area of Game Management Zones 10 and 11. In most of those years, about 85% of the wolves were killed. First Nations people voluntarily reduced their harvest of caribou in the area throughout the program. A review in 1985 recommended the

program keep going because there was a high rate of increase in the caribou population in the area. The caribou numbers in the area increased from 2000 to more than 6000 and the moose population doubled after the control program. The wolf population in the area was re-established to pre-control numbers by March of 1992, three years after the control program ended.

The Yukon Department of Renewable Resources has one of the most active wolf research programs in North America. Since 1983, over 200 wolves have been radio-collared in 80 different packs, allowing biologists to increase their understanding of various aspects of wolf population dynamics and predation ecology. However, the understanding of predator/prey relationships and the long-term impact of ungulate populations increased through wolf control is far from complete. Two studies have investigated the impacts of intensive control on wolf populations and the recovery of wolves and ungulates in the Finlayson control area continues to be monitored.

3.0 - THE PRINCIPLES OF THE YUKON WOLF CONSERVATION AND MANAGEMENT PLAN

The following principles have been used to guide the development of the Yukon Wolf Conservation and Management Plan:

3.1/ Wolves and their prey will be considered as integral parts of Yukon ecosystems.

3.2/ The genetic composition of wolves in the Yukon will be maintained.

3.3/ Ongoing research and monitoring of wolves, their prey and other elements of the ecosystem will be required.

3.4/ A broad range of human values and uses of wolves and their prey will be considered.

3.5/ Inherent/existence values of wolves(defined in Section 5.0) will be considered.

3.6/ Effects of habitat loss and fragmentation on wolves and their prey will be considered.

3.7/ The Plan will reflect the management goals and objectives established by the Yukon Umbrella Final Agreement, First Nation Agreements and other land claims.

3.8/ Education and information efforts are a required part of the Plan.

3.9/ Regulations and policies relating to management decisions affecting wolves will be presented in plain, everyday language.

3.10/ The Yukon Wolf Conservation and Management Plan will be open to future reconsideration and possible amendment.

4.0 - THE GOALS OF THE YUKON WOLF CONSERVATION AND MANAGEMENT PLAN

The goals listed below define the general intent of the Yukon Wolf Conservation and Management Plan.

4.1/ The Plan will be a reference for use by government agencies, cooperative wildlife management boards and other interested parties to insure the long-term survival of wolf populations throughout the Yukon in relation to their prey and habitat.

4.2/ The Plan will provide for a variety of human values of wolves and their prey and the inherent/existence values of wolves.

4.3/ The Plan will identify opportunities to increase public awareness and understanding of wolves and management decisions affecting wolves in the Yukon.

4.4/ The Plan will recommend the conditions under which wolf control may be used to manage Yukon wolf populations.

5.0 - THE NON-CONSUMPTIVE USE OF WOLVES IN THE YUKON

The non-consumptive use and enjoyment of wolves and other wildlife is of increasing importance in the Yukon along with other parts of Canada and the world. Not only do more people wish to view and photograph wildlife in a natural state, but there are also some people who believe that wild animal populations should be left as undisturbed as possible as part of natural ecosystems. This is a new attitude towards wildlife which recognizes and respects that animals have a right to exist, often called their "inherent" or "existence" values. In addition, Yukoners and tourists travelling through the Territory have expressed desires to see and photograph wolves and to visit areas where wolves can be heard howling.

In the past, wildlife managers have managed wild animals mostly to meet the needs of consumptive users. There has been a change in attitude and the Yukon Department of Renewable Resources began to recognize the value of managing specifically for non-consumptive uses several years ago. They have conducted a number of projects which have benefits other than those for consumptive use.

To meet the demands of non-consumptive users, the Department of Renewable Resources, other government agencies and the cooperative management boards in the Yukon should further increase effort and budgets for non-consumptive programs for wolves and other wildlife. Further, they should keep up to date on non-consumptive use trends which may be applied in the Yukon.

With the increase in wilderness tourism and other non-consumptive activities, there is more chance that the environment will be damaged by human traffic in fragile wilderness areas. To guard against these impacts, responsible government agencies should develop and implement guidelines for the activities of non-consumptive users of wildlife.

There are four recommendations of this Plan which refer specifically to the non-consumptive use of wolves:

5.1/ The Yukon Department of Renewable Resources should produce and distribute material about wolves in the Yukon which include lists of wolf interpretive opportunities and the Department and wildlife management advisory boards should consider non-consumptive opportunities.

5.2/ Budget and time allocations by the Yukon Department of Renewable Resources for non-consumptive use programs should be increased significantly.

5.3/ Guidelines for non-consumptive users of wildlife should be developed in order to protect the environment from viewing activities (eg. wolf denning sites, caribou calving areas).

5.4/ Conservation areas, which provide habitat protection over very large areas should be identified and designated using cooperative management processes.

6.0 - THE CONSUMPTIVE USE OF WOLVES IN THE YUKON

At the present time, hunters and trappers take very few wolves in the Yukon. This is in large part because they are difficult animals to hunt and trap. Trappers are faced with low prices for wolf pelts compared to other animals and a great deal of time and effort to skin wolves and prepare the pelts for sale.

Though Yukon Territorial hunting regulations class the wolf as a big game animal, they do not treat them the same way as the others. Seasons which allow them to be hunted when they are having and raising pups, the absence of bag limits and no requirement for hunting tags do not reflect the value which consumptive users place on wolves.

There are five recommendations for the consumptive use of wolves. They are made to protect and promote current consumptive uses and to increase the value of wolves as a hunted and trapped species.

6.1/ Resident and non-resident hunters should require seals or tags to be used for wolves.

6.2/ Non-resident hunters should have a bag limit of two wolves and resident hunters should have a bag limit of three wolves. These bag limits may be increased or removed in wolf control areas as outlined in Section 9.3.2 .

6.3/ The wolf hunting season for resident and non-resident hunting of wolves should be from August 1 to April 1. Hunters should be encouraged to take wolves when the pelts are prime and should respect the trappers in the area.

6.4/ Current regulations which allow for the baiting of wolves should remain unchanged provided that recommendation Number 6.2 is adopted and implemented.

6.5/ The following items covered by current regulations under the Wildlife Act(Yukon) have been reviewed and it is recommended that they remain unchanged:

i) the prohibition on the use of aircraft to hunt wolves.
ii) the prohibition on the use of snowmachines to hunt wolves.
iii) the current trapping season for wolves.
iv) regulations restricting minimum calibre size for use when shooting wolves to .22 centre fire.
v) the prohibition of night-hunting of wolves.
vi) the mandatory retrieval of pelts from wolves.

7.0 - THE MANAGEMENT OF UNGULATE SPECIES IN THE YUKON

It is impossible to fully consider the management of wolves without some consideration of the management of their prey. In the Yukon, the main prey species of wolves are moose, caribou and mountain sheep. The well-being of wolf populations depends very much on the well-being of the populations of their prey and wolves can be one of the factors which controls the size of caribou, moose and sheep populations.

People influence ungulate populations through killing them, disturbing them and by changing or destroying important habitat areas. Hunting limits and protecting habitat are the main ways in which humans can manage caribou, moose and sheep to keep their numbers at desireable levels. Despite making genuine efforts to

manage well in the past, managers often lacked adequate ability, information, funding or political direction to establish sustainable harvest levels for ungulates or to protect critical habitat areas. In the early 1980's, some managers in the Yukon Wildlife Branch were part of a worldwide trend in fish and wildlife management to try to manage on a maximum sustainable yield basis.

Past management practices or a lack of management may have contributed to serious declines in ungulate populations to levels which cannot meet the various needs and wants which humans have. Occasionally, the reduction of wolf populations has been proposed as a way to increase ungulate populations. Future management efforts and program funding must be increased in order that situations can be avoided where wolf control is considered. There must also be a clear recognition that the situation in the Yukon is changing rapidly. With a human population which has increased 25% in the last 6 years, more advanced technology in all-terrain vehicles, aircraft and other hunting equipment and increased access to hunting areas through more roads and trails, there is more pressure on the Territory's resources and the government and cooperative management boards must keep this in mind when making decisions.

There are six recommendations for the management of ungulates in the Yukon.

7.1/ Future management of caribou, moose and sheep and their habitat in the Yukon must have the objective that populations are not allowed to reach levels where wolf reduction might be considered necessary. This management responsibility is considered part of the "public trust" which the Environment Act(Yukon) requires the Government of The Yukon to protect.

7.2/ Key ungulate habitat areas should be identified and given full protection from development.

7.3/ Local Resource Councils or their equivalent should review all road, road upgrade or other access proposals with a view to avoiding or minimizing negative impacts on wildlife populations.

7.4/ Research and monitoring of ungulate populations and harvest in the Yukon should be improved and expanded to provide more extensive and reliable information on their status and trends.

7.5/ The needs of wolves and other predators should be considered when making management plans affecting ungulates in the Yukon, in addition to human consumptive needs or wants.

7.6/ Management recommendations suggested by the Yukon Department of Renewable Resources, The Yukon Fish and Wildlife Board, Local Resource Councils or other cooperative management committees should be dealt with and implemented in a timely manner.

8.0 - WOLVES AND AGRICULTURE IN THE YUKON

In other parts of Canada and the world, it was the conflict between wolves and livestock farmers which resulted in their widespread demise, along with the loss of prey habitat. The wolf no longer occupies much of its North American range and is all but extinct in Europe and the British Islands.

In the Yukon, the marginal nature of agriculture would seem to indicate that there will not be similar conflicts, however there have been occasions where wolves have become a problem for livestock owners in some areas in the Territory. The Department of Renewable Resources has developed a Problem Wildlife Policy to deal with these sorts of situations, however the policy has not been widely explained and many Yukoners are totally unaware it exists. There is also a Yukon Agriculture Policy which has provisions to prevent future agricultural land designations on key wildlife habitat areas.

There are two recommendations relating to wolves and agriculture in the Yukon.

8.1/ The Department of Renewable Resources should meet with representatives of agriculture in the Yukon to explain and review the Problem Wildlife Policy.

8.2/ Potential conflicts between wildlife and agricultural land use should be fully studied and the impacts on wildlife assessed prior to any new land being designated for agricultural purposes.

9.0 - WOLF REDUCTION PROGRAMS IN THE YUKON

It has been strongly recommended in this Plan that caribou, moose and sheep are managed so that situations where wolf control may be considered necessary are avoided. However, there may be areas in the Yukon where there are very low numbers of these animals. It is in these circumstances where wolf reduction programs have been considered before.

This section of the Yukon Wolf Conservation and Management Plan is divided into three parts. The first is the conditions which must exist before a wolf reduction program can be considered. The second is a set of guidelines for deciding whether or not to proceed with a wolf reduction program. The final section sets guidelines for doing wolf control.

9.1 - Conditions Required Before Wolf Reduction Programs Can be Considered

Wolf reduction programs in the past have often been conducted with little understanding of the natural system which is being changed. In some cases, it has been possible to increase ungulate populations by reducing wolves, but sometimes the results have not been very clear. More recently, the Department of Renewable Resources has been studying the impacts of a wolf reduction program in the Finlayson area and they are continuing to monitor the situation.

There are many things which can be responsible for limiting moose, caribou and other ungulate populations. Along with wolves, habitat quality and quantity, bear predation, weather and hunting can be important factors which create a complicated system where it is difficult to tell the impact of any single one of them.

In order to consider wolf reduction programs, a certain amount of information must be available in order to tell whether wolves are the problem and if controlling them will allow the prey populations to increase. It is generally acccepted by biologists that a situation must be studied for at least two years in order to know enough to make these decisions. Reduction is also a technique which should only be considered as a last resort, when other forms of management have failed or when local ungulate populations are in serious danger of disappearing.

There are three recommendations for conditions required before wolf reduction programs will be considered in a specific area.

9.1.1/ Wolf reduction will be considered when a geographically separate population of ungulates are threatened with local extinction. OR

9.1.2/ Wolf reductions will be considered when declining or low ungulate populations are such that conservation measures such as a total allowable harvest are applied either through Yukon land claims processes or an equivalent process. AND

9.1.3/ If a wolf control program is being considered, biological information, which can include local knowledge and extrapolation from other studies, must be collected over a period spanning two hunting seasons. During this period, a hunting closure will be placed on the area. The information must include the following:

i) the abundance and status of wolves, ungulates and bears.

ii) the potential impact of bears as predators.

iii) the number of ungulates, wolves and bears killed by people.

iv) the status of the ungulate habitat in the area.

9.2 - Guidelines for Decisions on Wolf Reduction Programs

When the conditions in the previous section exist, a decision can then be made on whether or not to proceed with a wolf control program. This will be aided by using the information collected on wolves, ungulates, bears, habitat and the number of animals killed by people. This information can help managers see whether or not wolves are limiting recovery of the ungulate population(s) and to tell whether wolf control would be much better than other ways of increasing ungulate populations such as stopping hunting or improving habitat. It is also critical that the Local Renewable Resource Councils contemplated by the Umbrella Final Agreement, or their equivalent in areas where they are not in place, concur.

There are seven recommended guidelines which must be followed before a decision can be made to proceed with a reduction program.

9.2.1/ An experimental design for a wolf control program must be prepared for the area and subjected to timely peer review which does not delay sound management and with the results of the review released to the public. The design must include:

i) the predicted increase recruitment (eg. calf survival in caribou, yearlings for moose) of the target ungulate species under different levels of wolf reduction.

ii) the desired level for the target ungulate population.

iii) an estimate of how large a population of the target ungulates the habitat in the area could support.

iv) the estimated number of years for which reduction must be conducted to achieve the desired population level(s) of the target ungulate species under different levels of wolf reduction.

vi) the predicted annual increase in the population if a reduction program is not conducted and a no hunting program is implemented.

vii) the predicted recovery of the wolf population after the reduction program is complete and the consequential impacts of the program on the wolves.

vii) follow-up monitoring and research requirements.

ix) estimates of program costs, including follow-up monitoring and research.

9.2.2/ In order to proceed, a wolf reduction program must have the approval of the Local Renewable Resource Council or its equivalent, the Yukon Fish and Wildlife Management Board or any other applicable cooperative management board and the Yukon Minister of Renewable Resources.

9.2.3/ In order to proceed with a wolf control program on or near the boundaries of a National Park or other jurisdiction, inter-agency agreements should be in place.

9.2.4/ In order to proceed with the reduction program, predicted calf survival rate increases must be substantially higher (at least double).

9.2.5/ In order to proceed with the reduction program, the predicted population growth must be substantially higher than that predicted to be achieved by stopping all hunting.

9.2.6/ In order to proceed, good evidence must be provided to suggest that the target ungulate species can stabilize at the increased level under a closely regulated harvesting regime.

9.2.7/ The Department of Renewable Resources will establish a percentage of the total Yukon wolf population which may be subjected to control at any one time. This percentage will insure the long-term viability of wolves in the Yukon.

9.3 - Implementation of and Follow-up to Wolf Reduction Programs

Implementating a wolf reduction program must again allow for the involvement of Local Renewable Resource Councils and must be undertaken as a well-designed experiment.

Although great care should be taken to be sure that wolves are the problem, it is possible that it will be discovered after the reduction program is underway that this is not the case. It is important that changes in the calf survival and population growth of the ungulate populations is monitored closely and the program stopped if anticipated results do not occur.

There are a number of methods for actually reducing wolf populations. The most effective of those currently available is the use of helicopter shooting with spotting assistance from fixed-wing aircraft. However, this method is recognized as one which many people find distasteful. Biologists have been recently trying to develop non-lethal methods to reduce or limit wolf populations and these should be strongly considered as alternatives to killing them if and when they are shown to be effective. In addition, there are more traditional types of control involving intensified trapping, organized hunts and removal of wolf pups from dens and these methods should also be assessed to see if they could be used as

effective alternatives to helicopter shooting or as a follow-up to a helicopter program.

To allow moose, caribou or other ungulate populations to recover under a wolf reduction program as quickly and cost-effectively as possible, other mortality which can be reduced should be. Ideally, all forms of hunting in the area would be stopped for the duration of a wolf reduction program and efforts must be made through cooperation among First Nations and assistance from the Yukon Territorial Government to enable displaced First Nation and other subsistence hunters to get meat they depend on by other means.

In order to completely assess the long-term impact of wolf reduction on both the ungulate species and the wolves, it is critical that follow-up monitoring occur.

There are eleven recommendations relating to the implementation of and follow-up to wolf reduction programs.

9.3.1/ To most effectively reduce wolf numbers to the target levels identified in the experimental designs, shooting from helicopters assisted by fixed-wing aircraft should be the method employed in reduction programs.

9.3.2/ Some traditional methods of wolf control which involve increasing trapping and hunting efforts or killing pups at den sites could be considered as alternatives to shooting from helicopters if these methods are shown to be effective for reducing wolf numbers. The bag limits for non-resident and resident hunters can be increased or removed in areas where a wolf control program is being conducted.

9.3.3/ Non-lethal methods of controlling or reducing wolf numbers such as birth control should be considered if these methods are shown to work for reducing wolf numbers to levels at which experimental designs would predict a substantial increase in ungulate populations.

9.3.4/ If calf survival of the target ungulate species in the area has not increased significantly(at least doubled) during the first two years of wolf reduction, the program should be suspended and the situation re-evaluated.

9.3.5/ If the population level of the target ungulate species fails to meet the predictions of the experimental design after five years, the reduction program should be suspended and the situation and experimental design re-evaluated.

9.3.6/ All hunting of target ungulates in the area should be stopped for the duration of the reduction program.

9.3.7/ Alternatives for acquiring meat for First Nation and other

subsistence hunters when hunting is not allowed in the reduction area could be achieved by:

i) identifying alternative species which could be hunted in the control area.

ii) identifying alternative areas for hunting, possibly using agreements between other First Nations.

iii) sharing agreements among First Nations.

iv) government assitance to implement sharing agreements.

v) directing meat obtained by the Yukon Territorial Government through seizures and other means to affected subsistence users.

9.3.8/ Where none of the alternatives outlined in 9.3.7 prove to be possible or effective, subsistence harvesting may take place in the reduction area through the Total Allowable Harvest formula developed pursuant to First Nations land claims, provided that the growth of the population of target ungulates will remain at or exceed the desired levels established in the experimental design.

9.3.9/ After a wolf reduction program is completed, the Local Renewable Resource Council or its equivalent should re-assess, re-establish and allocate a conservative Total Allowable Harvest in accordance with the provisions of the Umbrella Final Agreemnt and the applicable First Nation Agreements.

9.3.10/ If wolf populations are not recovering at predicted rates after the reduction program has been completed, harvesting of wolves in the area should be stopped.

9.3.11/ A wolf reduction program should be followed up with on-going monitoring and research to assess the response of local ungulates and predators.

9.3.12/ Only one wolf control program which uses helicopter shooting should be conducted in the Yukon at any one time except when a geographically separate population of ungulates are threatened with local extinction through wolf predation.

10.0 - PUBLIC EDUCATION AND CONFLICT RESOLUTION

Of all wildlife species in the world, the wolf is perhaps the one which has historically been most misunderstood by biologists, wildlife managers and the public at large. Portrayals of wolves as animals which kill for the sake of killing or as harmless predators of primarily mice, lemmings and other small mammals have

contributed to the passion with which many people express their views on how wolves should be treated by humans.

In recent years, the general public has begun to hold wildlife managers much more accountable for their decisions and are insisting on a more meaningful role in renewable resource management processes. Land claims in the Yukon and elsewhere have recognized and formalized this role for Native people and others through the establishment of cooperative management boards and councils.

In order for people to participate effectively in management decisions affecting wolves or other wildlife, it is critical that they be in possession of as much information as possible. This includes not only biological information, but local knowledge and the ethical considerations as well.

The management of wolves has been the subject of intense debate in Canada and around the world for many years now. Particularly when there is a prospect of wolf reduction programs, conflicts among people holding strong views on the issue invariably occur and place enormous pressures on those charged with the responsibility for making decisions. Land claims in the Yukon have or will establish cooperative management boards which are designed to give First Nation people and others outside of government meaningful participation in resource management and it is these groups which can ease conflicts by bringing together a variety of interests and weighing them prior to making recommendations.

There are three recommendations for public education and conflict resolution.

10.1/ The Yukon Department of Renewable Resources should produce written and audio-visual material on wolves, how wolves interact with their prey and wolf management in the Yukon, including clear explanations about wolf control programs. This material should be actively distributed both to Yukoners and to others.

10.2/ The Yukon Department of Renewable Resources should work with the Department of Education and Yukon College to develop balanced environmental education components for each traditional subject area in the regular school curricula in the Yukon. This material should enable students to judge the biological, ethical and traditional questions involved in wolf and other wildlife management issues.

10.3/ The Yukon Fish and Wildlife Management Board, The Department of Renewable Resources, Local Resource Councils and other cooperative management committees must consider both consumptive and non-consumptive viewpoints when making decisions regarding wolf management.

11.0 - RESEARCH REQUIREMENTS

There has been a tremendous increase in scientific knowledge respecting wolves over the past several years, however there are still many aspects of their population dynamics and predation ecology which are not well understood. Some managers have also shown reluctance in the past to collect and incorporate traditional or local knowledge and it is being demonstrated that often this information can be extremely valuable for assessing populations or developing management programs. In addition, with the increase in public interest and awareness of ethical considerations in wildlife management, there is a need to promote and conduct research into the ethical aspects of wolf management.

With more people becoming troubled by reducing wolf populations through methods such as shooting from helicopters, there has been a high priority set by wildlife managers to develop and test alternative methods which do not involve killing the animals. Some First Nations people in the Territory have also recalled some traditional methods of controlling wolf populations and, while many of these have been shown to work only on a very local level, others warrant further investigation to determine their potential effectiveness.

Ethical, biological and traditional research efforts can all benefit from input from sources outside the Yukon. Review of research proposals by colleagues outside the Territory and collaborative efforts with academics and researchers from other jurisdictions can only help to stengthen the quality of programs conducted.

There are thirteen recommendations on research.

11.1/ The potential effectiveness of non-lethal methods for use in controlling or reducing wolf populations should be assessed.

11.2/ The potential effectiveness of more traditional methods of controlling or reducing wolf populations should be assessed. These methods include increasing trapping and hunting effort and removal of wolf pups from dens.

11.3/ A comprehensive program should be developed by the Department of Renewable Resources to examine the ethical considerations of how human\wildlife relationships relate to wildlife management, wolves and wolf reduction programs in the Yukon. This could be achieved through commissioned papers, monographs and conferences.

11.4/ There should be an increase in exchange among wildlife biologists and managers through regular visits to the Department of Renewable Resources by outside researchers and managers.

11.5/ There should be increased emphasis placed on developing

cooperative research and management efforts among the Yukon Department of Renewable Resources' staff, academics and biologists and managers from other jurisdictions (eg. wolf genetic research).

11.6/ A Local Knowledge Program should be developed to gather information from people on the land(eg. trappers, subsistence hunters, wilderness guides, outfitters).

11.7/ Research on the long-term effects of wolf reduction programs on both the wolves and their prey should be conducted.

11.8/ An area to be used as a long-term reference for a wolf reduction program in the future should be identified and designated.

11.9/ Research should be conducted to assess the impact of wolf control programs on other fur-bearers.

11.10/ The feasability of small-scale aerial wolf control programs should be examined.

11.11/ The impact of All-Terrain-Vehicles on ungulate harvest and habitat should be assessed by the Department of Renewable Resources and appropriate guidelines established.

11.12/ Significant, long-term research should be conducted to study bear/wolf/prey relationships and other bear management issues.

11.13/ The Department of Renewable Resources should publish the annual harvest levels of ungulates and predators by all user groups throughout the Yukon on a zone-by-zone basis.

12.0 - FUTURE REVIEW AND AMENDMENT OF THE PLAN

The Department of Renewable Resources will produce a Yukon Wolf Conservation and Management Plan implementation report after no more than five years. The Plan could then be publically reviewed and amended accordingly.